

Reliability Filing Requirements for LSEs' 2022 Integrated Resource Plans

Results of PRM and ELCC Studies

Modeling Advisory Group Webinar

July 19, 2022

Webex Q&A Log

-Nick Pappas (nick@npenergyca.com) - 10:09 AM

Q: Hi Nathan, any updates you can share on the Programmatic Approach?

Priority: N/A-

-Nathan Barcic - 10:14 AM

A: Hi Nick. The the Programmatic Approach is synonymous with the "IRP Procurement Program" I mentioned a minute ago. We are still on track for development of that program, per the schedule outlined in the Feb '22 PSP decision. Would expect a staff proposal a little later this year.-

-Brian Theaker (btheaker@mrpgenco.com) - 10:37 AM

Q: It's interesting, perhaps ironic, that the CPUC IRP team is proposing to move towards ELCC for resource counting for all resources at the same time that the RA program is moving away from using ELCC for capacity counting. This would seem to drive the IRP and RA programs farther apart rather than closer together. Could Energy Division and Astrape please comment on this?

Priority: N/A-

-Scott Olson (scott.olson@nrg.com) - 10:40 AM

Q: Why was only firm capacity removed during the model tuning to a 0.1 LOLE? Could this create an artificially high PRM by modeling a system with fewer firm resources when compared to a system where all resource types were removed during tuning?

Priority: N/A-

-Aaron Burdick - 10:47 AM

A: During the PCAP PRM calculation, perfect capacity is added/removed to meet 0.1 LOLE (not firm capacity). The PCAP PRM is therefore not dependent upon resource portfolios; instead it is assumed that all portfolios would be accredited at ELCC (i.e. PCAP). The ICAP PRM, however, IS a function of firm vs. non-firm resource mix, per the range of ICAP PRM provided based on higher or lower shares of firm vs. non-firm resources.-

-Brian Theaker (btheaker@mrpgenco.com) - 10:54 AM

Q: Could the presenters please repeat how they define "managed peak" and "gross peak"?

Priority: N/A-

-Patrick Young - 11:10 AM

A: managed peak is straight from the CEC's IEPR forecast, gross peak in our IRP PCAP PRM result is just managed peak but with BTM PV effects (peak shift) removed-

-Scott Olson (scott.olson@nrg.com) - 10:56 AM

Q: Is the 23.5% ICAP PRM equivalent for September only? The bullets say 19-23.5%--is this the range for all months?

Priority: N/A-

-Kevin Carden - 11:12 AM

A: The 23.5% ICAP PRM is an annual requirement (total need divided by annual peak). Comparing to monthly requirements can be a bit challenging, but since the annual peak occurs in August or September the requirements are roughly comparable. -

-Mark Specht (mspecht@ucsusa.org) - 10:57 AM

Q: Makes sense to me to base the PRM off of the gross peak load, but then you have to count BTM solar towards reliability requirements on the supply side. Does Energy Division already have a proposal for how to ensure all the BTM solar gets counted? (either by reducing reliability requirements or dividing up the value amongst LSEs?)

Priority: N/A-

-Aaron Burdick - 11:06 AM

A: BTM PV ELCCs can be calculated in the same way as supply side solar ELCCs in SERVM. The IEPR provides a forecast of BTM PV MW that is included in SERVM. Energy division staff have calculated an LSE level BTM PV forecast for use in LSE IRPs for this cycle, to be counted at the SERVM-derived BTM PV ELCC%.-

-Deborah Behles (deborah.behles@gmail.com) - 11:02 AM

Q: When considering extreme weather, has there been any consideration of how to consider programs like the ELRP to meet extreme weather loads rather than incorporating those needs into the PRM?

Priority: N/A-

-Nathan Barcic - 11:08 AM

A: Deborah: Can you be a little more specific? Are proposing that certain demand-side programs be characterized as load modifying, and thus be incorporated as decreases in load rather than as resources that get assigned accreditation towards reliability standards?-

-Scott Olson (scott.olson@nrg.com) - 11:06 AM

Q: Thanks Aaron. Slide 22 says "Firm Capacity Removed During Tuning". Are you saying this is in error and should be "Perfect Capacity" removed?

Priority: N/A-

-Aaron Burdick - 11:08 AM

A: No, slide 22 is correct for the ICAP PRM method, which is a different method than the PCAP method described on slide 20. -

-Stephen Keehn (steve@pacificea.com) - 11:11 AM

Q: Can there be firm (i.e., gas) resources that are also use-limited?

Priority: N/A-

-Deborah Behles (deborah.behles@gmail.com) - 11:15 AM

Q: @Nathan. Yes, that would be one way to consider those programs. In general, I'm asking how those programs, which were designed to meet times of extreme load, are considered? They haven't been counted toward meeting the PRM historically, but it appears that the PRM is increasingly being driven by extreme weather. Given this shift, will ELRP programs be considered for meeting PRM? Or is there any change into how those programs are being considered?

Priority: N/A-

-Nathan Barcic - 11:37 AM

A: Deborah: Demand Response-like programs are given accreditation towards meeting reliability requirements in this analysis. We consider ELRP to fit in that category, though I believe its not included as a unique resource here, particularly for the years further out. If you have thoughts on whether/how to do so, esp given any program limits (such as how far into the future we expect the program to exist), please feel free to follow up.-

-Joseph Yan (joseph.yan@sce.com) - 11:17 AM

Q: At page 30, can you provide the total of installed capacity for comparison instead of PRMs? Thank you.

Priority: N/A-

-Patrick Young - 11:31 AM

A: Total Capacity MW	67.2	69.2
ICAP PRM above gross peak	18%	21.5%

First column is 55% of resouces counted with ELCC, second column is 30% of resources counted with ELCC-

-Doug Karpa (dkarpa@peninsulacleanenergy.com) - 11:23 AM

Q: Shouldn't existing resoruces use Average ELCCs or even ELCCs without marginal resources? It seems like if ALL resources use marginal ELCCs the value of the whole portfolio will be far too low.

Priority: N/A-

-Aaron Burdick - 11:43 AM

A: This is the "combination" of average and marginal that Neil noted. This approach would have introduced new complexities procedurally and technically, deeming it infeasible for the LSE plan ELCC use case. Using marginal ELCC for all resources AND lowering the accredited MW need (to the marginal

reliability need instead of the total reliability need) ensures that the accredited MW at marginal ELCC equals the MW needed to keep the system reliable.-

-Doug Karpa (dkarpa@peninsulacleanenergy.com) - 11:23 AM

Q: *for LSE IRP submissions

Priority: N/A-

-Aaron Burdick - 11:44 AM

A: Adder to previously answered question-

-Jin Noh (jnoh@storagealliance.org) - 11:30 AM

Q: Why does PRM study look at solar + storage ELCC surface while marginal ELCC study produces results for them separately? Wouldn't there a risk of inadequate solar investment as a result since solar marginal ELCC is so low?

Priority: N/A-

-Kevin Carden - 11:46 AM

A: The marginal ELCCs are ex ante values based on a specific forecast of resources for each study year. The solar/storage ELCC surface is developed for use in RESOLVE expansion planning analysis since the resource portfolio isn't pre-determined.-

-Nick Pappas (nick@npenergyca.com) - 11:31 AM

Q: Two questions on marginal: 1) Would the marginal need reduction be applied to all LSEs' requirements on a pro rata basis? 2) Would this be used for need determination for a future procurement order?

Priority: N/A-

-Neil Raffan - 11:39 AM

A: 1) Each LSE's share of managed peak is applied to the the Marginal Reliability Need to define their reliability need. 2) Out of scope for this webinar. We're focused on the planning track here. -

-Scott Olson (scott.olson@nrg.com) - 11:23 AM

Q: Thanks Kevin. So if 23.5% PRM is the annual need, what does the 19-23.5% range refer to?

Priority: N/A-

-Kevin Carden - 11:41 AM

A: The range of 19-23.5% ICAP PRMs as a function of managed load represents the different values for different study years. The large range is driven by the changing proportion of the firm fleet to the total resources over time.-

-Deborah Behles (deborah.behles@gmail.com) - 11:44 AM

Q: How are local needs considered in this modeling? Do the reliability needs look at local reliability in addition to system reliability? And if so, has there been any work to make the modeling more granular from a local needs perspective?

Priority: N/A-

-Nathan Barcic - 11:59 AM

A: Deborah: SERVVM, used here, does system-level analysis and doesn't focus on local analysis in the way you describe. The usual home of that is powerflow analysis, which you're probably familiar with from CAISO's local area studies. However, you're also probably aware that IRP is trying to develop a local analysis toolkit -- likely as a companion or add-on to RESOLVE -- that could help inform optimization at a local level. Just noting that the studies discussed today are not optimization studies, though.-

-Mark Specht (mspecht@ucsusa.org) - 11:42 AM

Q: When using marginal ELCC, it makes sense to reduce the total MW requirement accordingly. However, slide 39 seems to show the reduction benefitting all LSEs. Does this effectively penalize LSEs that have already procured extra renewables, because the reliability value of those resources will benefit all LSEs?

Priority: N/A-

-Aaron Burdick - 11:49 AM

A: Yes, the lowering of TRN to MRN would be shared across LSEs. This would have different impacts on different LSEs. If an LSE relies heavily on a resource that no longer supports reducing reliability risk on the margin, then that resource would receive lower value in a marginal ELCC world.-

-Mark Specht (mspecht@ucsusa.org) - 11:43 AM

Q: Q for Kevin: I tuned into the marginal vs. average ELCC webinar. Could you explain why marginal ELCC is the right metric to use here, and why your concerns about marginal don't apply and/or are less compelling in this context?

Priority: N/A-

-Kevin Carden - 11:54 AM

A: Personal opinion only: I believe the appropriate accreditation method is a dynamic marginal ELCC approach which gives credit for every MW needed to serve the gross peak. With this method, the sum of accreditation would match the total reliability need rather than the marginal reliability need. This method is the combination method that Neil referenced. Unfortunately it is more administratively and analytically complex to implement, and we didn't have adequate time to fully explore it in this process.-

-Tom Beach (tomb@crossborderenergy.com) - 11:45 AM

Q: Most solar projects under development in California are hybrid solar plus storage projects. How should LSEs accredit the hybrid projects that they are developing? Will the hybrid ELCC be the sum of the solar and storage ELCCs? How will the marginal ELCC for hybrids account for the benefits of hybridization such as being able to harvest additional solar energy (+ associated capacity) that otherwise would be clipped in the inverters?

Priority: N/A-

-Aaron Burdick - 11:52 AM

A: The Resource Data Template includes a heuristic for calculating hybrid resource ELCCs. It is based on the sum of solar and storage marginal ELCCs, which account for diversity benefits (e.g. incremental storage needing solar energy to charge) at the system level, but does not differentiate based on project specific configurations (higher or lower ILR, etc.). -

-Mark Specht (mspecht@ucsusa.org) - 11:46 AM

Q: one more - are thermal generator outages modeled as completely independent or correlated? If independent, are the ELCC calculations still overvaluing thermal resources?

Priority: N/A-

-Kevin Carden - 11:57 AM

A: Thermal generator outages are modeled as independent. We think this is adequate for the CAISO system which almost exclusively shows summer reliability risk as we don't see significant correlation among hot weather outages in our work in other areas. -

-Paul Nelson (paul@barkovichandyap.com) - 11:47 AM

Q: A marginal ELCC should be applied to a marginal resource acquisition to meet a marginal change in load. I am not following how the net load is a marginal change in load. Please provide more details on this assumption.

Priority: N/A-

-Kevin Carden - 12:02 PM

A: The sum of marginal ELCCs will equal the gross load plus reserve requirement (not net load) in critical reliability hours. -

-Kamran Tehranchi (ktehranchi@caiso.com) - 12:10 PM

Q: Can you provide additional documentation on how stochastic load profiles were generated for the SERVM model?

Priority: N/A-

-Patrick Young - 12:24 PM

A: in short, collected historical hourly load for recent years (e.g. 2018-2020) and trained our synthetic load profile model with the relationship between temperature and electric demand. Then we apply all weather years 1998-2020 to synthesize 23 versions of hourly load based on 23 historical weather patterns. Please contact donald.brooks@cpuc.ca.gov if you need more details.-

-Jessica Melms (jmelms@eslawfirm.com) - 12:11 PM

Q: Sorry if i missed this discussion, did the Energy Division discuss how you arrived at the updated ELCC values for OSW and OOS wind?

Priority: N/A-

-Aaron Burdick - 12:15 PM

A: The marginal ELCC values for OSW and OOS wind were calculated in SERVM as part of this project. Allocating those to sub-classes (e.g. WA/OR wind vs. WY wind) was done using the recent sub-class wind ELCC study in the RA proceeding. -

-Chase Maxwell (CKM@ESLAWFIRM.COM) - 12:20 PM

Q: Will the I&A updates consider "green hydrogen" or other decarbonization strategies at existing resources in the candidate resources?

Priority: N/A-

-Eshraghi, Alireza - 12:26 PM

A: We will cover these topics as part of the I&A process.-

-Jessica Melms (jmelms@eslawfirm.com) - 12:23 PM

Q: Thanks! Will the I&A document deal with green hydrogen/decarbonization strategies in the candidate resources?

Priority: N/A-

-Eshraghi, Alireza - 12:26 PM

A: We will cover these topics as part of the I&A process.-

-Paul Nelson (paul@barkovichandyap.com) - 12:24 PM

Q: I figured how to lower hand. I clicked on the wrong field. sorry.

Priority: N/A-

-Kate Kelly (kate@kgconsulting.net) - 12:28 PM

Q: Thank you!

Priority: N/A-

-Doug Karpa (dkarpa@peninsulacleanenergy.com) - 12:28 PM

Q: really excellent work!

Priority: N/A-